

DISPOSAL SITE AND SOUTH PORTAL STORMWATER AND NON-STORMWATER DISCHARGE INFORMATIONAL HANDOUT



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Section 1 Purpose and Objective

The purpose of this Informational Handout is to highlight and summarize key elements of the Contract Plans and Special Provisions related to stormwater and non-stormwater discharge management within the South Portal and Disposal Site Area of the Tunnel Contract, Contract No. 04-1123U4. This Handout also provides additional guidance and information to assist the Contractor in complying with stormwater and non-stormwater discharge requirements. The objective of providing this information is to assist the Contractor in developing an approach to stormwater and non-stormwater management at the site that will ensure that all necessary elements are taken into account so that chances of discharges of contaminated stormwater and non-stormwater discharge offsite during construction activities and non-compliance with the California Department of Transportation (Department) stormwater permit are minimized. Proper stormwater and non-stormwater discharge management will be essential during the construction activities covered by this contract. The site conditions and construction activities contain a number of elements that make stormwater and non-stormwater discharge management a significant challenge at this site. This Handout also provides guidance to assist the Contractor in eventual preparation of the Contractor Stormwater Pollution Prevention Plan (SWPPP) and non-stormwater discharge plan.

It is critical that the Contractor makes every effort to ensure proper stormwater and non-stormwater discharge management at this complex and challenging site. The Contractor is responsible for penalties assessed or levied on the Contractor or the Department as a result of the Contractor's failure to comply with the provisions in the Water Pollution Control and Non-Stormwater Discharge Specifications, including, but not limited to, compliance with the applicable provisions of the Permits, the Manuals, and Federal, State and local regulations and requirements as set forth therein.

This Handout is generally specific to initial construction activities related to tunnel excavation and disposal of material. This Handout does not include consideration of other stormwater and non-stormwater discharges related to other construction activities occurring during the middle and end of the contract. This does not relieve the Contractor from having to account for all stormwater and non-stormwater related discharges according to the special provisions for the full duration of the contract.

Section 2 Disclaimer

This Handout is designed to provide information to be used as guidance for the Contractor in preparing required contract documents related to stormwater and non-stormwater discharge requirements. This Handout is to be used in preparation of the SWPPP and non-stormwater discharge plan, and is not a substitute for all other specific requirements in the Plans and Special Provisions.

SECTION THREE *Relevant Documents within Plans and Special Provisions*

Section 3 Relevant Documents within Plans and Special Provisions

There are a number of documents within the Plans and Special Provisions that cover stormwater and non-stormwater requirements. These documents include, but are not limited to the following, for which brief summaries are provided below:

3.1 WATER POLLUTION CONTROL SPECIFICATION

The Water Pollution Control Specification discusses basic requirements for water pollution control and stormwater management at the site during all seasons. This specification also discusses procedures for the SWPPP preparation, approval and amendments.

3.2 DISPOSAL CONTROL PLAN

The Disposal Control Plan (DCP) is the key specification that provides the most detail on stormwater management at the disposal site. The DCP provides guidance to the Contractor for preparation of the Contractor DCP. Elements of the DCP that are covered in this document include mobilization of excavated material, stormwater pollution prevention activities, DCP submittal and review procedures, run-on prevention, work and access area treatment systems, and disposal site sampling and analytical requirements. The DCP illustrates the proposed method for disposal of material and shall include Water Pollution Control Drawings that show the Deployment of BMPs and temporary drainage (if required) in and around the embankment construction to address control of run-on from adjoining areas and stormwater discharge from the embankment footprint and access areas. The DCP is later incorporated into the project Storm Water Pollution Prevention Plan (SWPPP).

The DCP shall contain a Disposal Site Sampling and Analysis Plan (DSSAP) that describes the sampling and analysis strategy and schedule for monitoring pH, and turbidity in conformance with this section. The DSSAP should also specify sampling for non-visible pollutants that could exist on the construction site from (1) construction materials, wastes, or operations, (2) existing contamination at the site, or (3) application of soil amendments.

The DSSAP shall identify sampling locations for collecting water quality samples and the rationale for their selection. The ESA restrictions should be considered when identifying sampling locations.

Sampling locations shall be shown on the Water Pollution Control Drawings. Background samples should be taken immediately upgradient from the runoff collection ditch at areas where an adequate sample volume can be collected. Only trained personnel shall collect water quality samples and shall be identified in the DSSAP. Qualifications of designated sampling personnel shall describe training and experience, and shall be included in the DSSAP. The DSSAP shall state the sampling preparation and collection procedures, quality assurance/quality control, calibration logs for equipment used to take field measurements, sample labeling procedures, sample collection documentation, sample shipping and chain of custody procedures, sample numbering system, and reference the construction site health and safety plan.

SECTION THREE *Relevant Documents within Plans and Special Provisions*

3.3 PROJECT PLANS

The Project Plans contain drawings of site features that are critical in providing the Contractor with information in developing an approach to stormwater management at the site. Key Plans are:

- ?? Sheets 35-39 Water Pollution Control Details
- ?? Sheets 40-50 Erosion Control Plans, Details, and Quantity
- ?? Sheets 58-92 Drainage Plans, Profiles, Details, and Quantities

A particularly important sheet is the Disposal Site Slope Face Stabilization drawing, which provides detail on how materials at the disposal site are to be managed in lifts. Because this sheet is critical to disposal site management, it is included as Figure 2 in this Handout.

The drainage plans are important in showing storage systems that are intended to collect, store and convey natural runoff that flows through the work areas. Untreated stormwater and non-stormwater discharges shall not be discharged into natural stormwater runoff.

3.4 NON-STORM WATER DISCHARGE CONTROL PLAN

This specification requires that all groundwater encountered during tunnel excavation or structure excavation be considered as non-storm water. Stormwater or accumulated precipitation will not be considered as non-stormwater. The specification also addresses the handling of groundwater encountered during the construction of the leach water underdrains. The specification draws attention to “Leach Water System and Carbon Dioxide Storage Tank,” of the special provisions for the treatment and disposal of leached groundwater. A Leach Water Treatment System as described in this special provision will be constructed as part of this contract to treat the post-construction leached groundwater collected in the underdrain system for pH adjustment. All post-tunnel construction leached water 60 milligrams/liter (mg/l) and less will be conveyed to the Leach Water Treatment System for pH adjustment and disposal.

As part of the Monitoring and Reporting Program (MRP) described in this section, the leached groundwater encountered during construction in the underdrains will be tested at the specified monitoring location INF-002. If the monthly average suspended solids measured at INF-002 exceeds 60 mg/l, this water will be considered as non-stormwater and will need to be conveyed to the Temporary Non-storm Water Treatment System (TNSWTS) required in this specification for adjustment of pH and removal of suspended solids.

As part of the non-storm water discharge control work, the Contractor is to prepare a Non-Storm Water Discharge Control Plan (NSDCP) as required by the “Non-Storm Water Discharge Control” specification. In general, the NSDCP should cover: construction areas and activities related to tunnel excavation that would result in a non-storm water discharge; collection and conveyance systems for conveying the discharges to the TNSWTS; pretreatment measures in the conveyance system to remove suspended solids/turbidity; staging areas for TNSWTS; disposal of solids removed from the pretreatment measures and the TNSWTS; and the reuse of treated non-storm water for irrigation, dust control, construction water for fill compaction or at a concrete batch plant.

SECTION THREE *Relevant Documents within Plans and Special Provisions*

The specification requires that the contractor choose a treatment technology for the TNSWTS that will treat the non-storm water to comply with the effluent limitations and receiving water limitations set forth in the individual National Pollutant Discharge Elimination System (NPDES) permit (CA0038831) issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB). The Permit incorporates conditions from the California Ocean Plan by referencing to it in the conditions.

The specification requires that the NSDCP be prepared by a Professional Engineer (PE) certified in the State of California. The PE is also required to oversee the work of the Certified Technician, prepare the submittals required in this section, including the required modifications or amendments; oversee the TNSWTS operation and maintenance activities; be responsible for the implementation and adequate functioning of the components for the collection, conveyance, pretreatment, treatment and disposal from the TNSWTS in compliance with the Permit requirements. The Certified Technician shall implement the NSDCP under the oversight of the Professional Engineer. Qualifications of the Certified Technician are described in the specification.

The Water Pollution Control Manager as described in “Water Pollution Control” of these special provisions will be the primary contact for issues related to the NSDCP or its implementation.

The individual NPDES permit specifies implementation of the MRP to demonstrate compliance. The MRP in the individual NPDES permit specifies monitoring locations, frequencies and reporting requirements, and refers to Tables A and B and Appendix II in the Ocean Plan for requirements related to parameters that need to be monitored and the minimum levels. The discharge locations and monitoring locations shall not be modified. The specification requires submittals of various reports to the Engineer for review that are required in the permit.

A useful document to reference in completing the NSDCP is the “Conceptual Preliminary Design Report, Tunnel Excavation Groundwater Treatment System, prepared by the Department for treatment and disposal of non-storm water discharges.

Copies of the Conceptual Design Report, the RWQCB individual NPDES permit and the Ocean Plan are included in this Handout.

3.5 RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SPECIFICATION

This Specification summarizes the conditions of the RWQCB permit for the site, i.e., RWQCB Order No. R2-2004-0044 on Waste Discharge Requirements and Water Quality Certification for the California Department of Transportation for Devil's Slide Tunnel Project, and Final Order No. R2-2006-0049, NPDES Permit No. CA0038831 for the Devil's Slide Tunnel Project. Key conditions discussed are the pH and turbidity water quality discharge limitations, and provisions for the handling and disposal of treated groundwater.

Copies of these Permits are included in this Handout.

SECTION THREE *Relevant Documents within Plans and Special Provisions*

3.6 ORDER OF WORK SPECIFICATION

The Order of Work specification references the other contract specifications and activities, and in particular stipulates which specifications and activities are to be performed first, i.e., prior to construction activities. These initial activities include:

- ?? Delineation of Environmentally Sensitive Areas (ESAs) and construction of temporary fence;
- ?? Obtaining of relevant permits;
- ?? Compliance with "Relations with the Regional Water Quality Control Board" specification;
- ?? Submittal of the disposal control plan;
- ?? Compliance with Clearing and Grubbing" specification;
- ?? Compliance with General Migratory Bird Protection specification;
- ?? Construction of diversion ditch and other run on prevention features, including the permanent detention basin and temporary equalization basin;
- ?? Construction of dedicated topsoil stockpile location;
- ?? Installation of fiber rolls and erosion control netting prior to the start of Erosion Control (Type D) work; and
- ?? Submittal and approval of the Storm Water Pollution Prevention Plan

The specification also states that the disposal of excavated material from the tunnel and embankment slope construction at the dedicated disposal site shall be staged in accordance with the detail for Disposal Site Slope Face stabilization shown on the plans, including stabilization of the slope face of embankment slopes with erosion control netting as the embankment is constructed in lifts.

3.7 CLEARING AND GRUBBING SPECIFICATION

The Clearing and Grubbing Specification describes procedures to clear and grub vegetation from areas of construction activities. The Specification requires that prior to any clearing and grubbing operation, all areas to be cleared and grubbed are to be inspected for existing biological nests and exotic species. Vegetation to be cleared in areas where topsoil will be obtained, i.e., for use in developing the embankment at the disposal site, are to be cleared by removing the top growth vegetation to a height of 50mm above the ground surface and maintained at a height of 100mm. The removed vegetation is to be chipped and left in place. Existing vegetation outside the areas to be cleared and grubbed are to be protected from damage resulting from the Contractor's operations.

3.8 EARTHWORK SPECIFICATION

The Earthwork Specification describes procedures to transport, place, spread and compact excavated material at the disposal site. The Specification requires the construction of a temporary haul road within the project limits to transport excavated materials without using Route 1. The types and sizes of disposed materials that are to be used in embankment construction at the disposal site are discussed as well as the procedures to stage and construct the embankment in

SECTION THREE *Relevant Documents within Plans and Special Provisions*

incremental lifts. The Specification emphasizes that the outer portions of the embankment at the disposal site are to be constructed first, and then stabilized with erosion control netting prior to placement of any other embankment material behind the exterior berm.

3.9 TEMPORARY ACCESS SPECIFICATION

The Temporary Access Specification requires the Contractor to prepare a Temporary Access Plan that details the work involved in developing access through the defined corridor. The Plan is to show all grading, drainage, surfacing materials, stabilization techniques, fencing details, restoration work to remove access, and post construction stabilization. The Temporary Access Plan shall include proposals for restoring temporary access back to original grades to match surrounding terrain. During the construction period, this specification requires the Contractor to maintain the temporary access until removed and the area is restored. The Contractor is to prevent and minimize heavy erosion, concentrated flows of untreated runoff, rutting or migration of surfacing or supporting soils from encroaching into ESA areas. Any significant depressions resulted from settlement or heavy equipment are to be repaired by the Contractor. The specification emphasizes that the Contractor shall minimize tracking of soil and sediment onto the roadway.

Section 4 Water Pollution Control Plan Summary

This Informational Handout describes the overall approach to stormwater control at the site, emphasizing the key temporary BMP design elements, disposal site management, stormwater management, and monitoring activities that are most important to ensure construction activities can occur without causing illegal discharges of contaminants from the site during storm events, to ensure permit compliance.

Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications and the special provisions. The work related to stormwater and non-stormwater management should also be performed in conformance with RWQCB, U.S. Army Corps of Engineers, California Department of Fish and Game permits for the construction work. Key project elements that relate to stormwater and non-stormwater management are:

- ?? Procedures to transport material from the tunnel excavation to the disposal site
- ?? Placement and management of material generated from the project at the fill disposal site
- ?? Prevention of stormwater run-on onto the disposal site
- ?? Construction of an effluent treatment system to treat all surface runoff discharges from construction work areas
- ?? Drainage systems installed to store and convey natural runoff through work areas
- ?? A Disposal Site Sampling and Analysis Plan (DSSAP) that describes the sampling and analysis strategy and schedule for monitoring pH and turbidity in conformance with permit conditions

Figure 1 presents a conceptual drawing of potential locations of site run-on prevention features. Figure 2 provides specific guidance for construction of lifts of material at the disposal site. Figure 3 provided a conceptual design of the equalization basin.

Two key criteria discussed below that will affect the contractor's approach to stormwater management efforts are the presence of Environmentally Sensitive Areas (ESAs) at the site and RWQCB Permit Discharge Limitations.

4.1 ENVIRONMENTALLY SENSITIVE AREAS

The project site contains several ESA areas. The Contractor must keep in mind the restrictions on access and use of these ESA areas when selecting the location, designing, and maintaining BMPs at the site. The Frog Pond, in particular, at the low point of the watershed area down gradient from the disposal area is an ESA which has a number of restrictions that require careful consideration.

Section 5 Run-on Prevention

Run-on prevention measures are to be described in the DCP. Also, water pollution control drawings are to show BMPs for diverting runoff from above and around the embankment work area at the disposal site. The drawings should show how natural runoff will be diverted and prevented from entering into work areas. Given that a significant amount of embankment construction will be required, the diversion BMP should be placed at a sufficient elevation/location initially that will be unaffected by ongoing embankment construction. The run on prevention should graphically depict the location and BMP in plan and sectional views detailing the diversion technique for natural runoff. The run on prevention should define the flow path and placement of pipes, ditches, swales, fencing, nettings and covers, and other equipment and materials used to divert and convey the natural runoff. The discharge from run on prevention should not cause erosion at the point of discharge nor result in negative impacts to aquatic vegetation or aquatic life forms. In addition, a site plan should be prepared that depicts the general position of the run on prevention BMPs relative to the embankment work area or locations that require protection, including the point of discharge, and proposed sampling locations. Figure 1 presents a conceptual drawing of potential locations of site run on prevention features.

Natural, uncontaminated stormwater runoff must be kept isolated from stormwater and non-stormwater discharges that runs off from construction activities. Prevention of this co-mingling of stormwater sources will reduce the volume of stormwater that can be contaminated by construction activities, lessening the changes of illegal discharges of stormwater and non stormwater discharges off-site. Prevention of stormwater run-on onto the site will serve to prevent this co-mingling. Collected uncontaminated stormwater runoff must be conveyed off site to ensure commingling does not occur. This section describes key temporary BMP design elements to capture clean stormwater run-on upgradient from the disposal site and convey it offsite. Figure 1 indicates the general location of these elements and how they work together.

5.1 STORMWATER COLLECTION DITCH

To direct clean stormwater away from the disposal site area, a ditch constructed just upgradient from the DSA portion of the disposal site should be installed. A U-Ditch or V-Ditch design may be appropriate. Most of the stormwater up the hill from the DSA should be directed by the ditch off towards the south portion of the drainage area, as there is more space in the south portion to manage the water collected in the ditch. The size of the ditch should be determined through calculations of runoff expected from the watershed drainage areas up from the ditch. The ditch should be lined with an erosion control blanket, plastic material, shotcrete or other material to prevent washout, provide structural integrity to the ditch and facilitate the complete capture and conveyance of all stormwater away from the DSA. The ditch will not convey stormwater from the far northwest portion of the watershed, which will instead be conveyed by sheet flow and culverts, to the permanent detection basin (see Figure 1).

5.2 CHECK DAMS ALONG DITCH

As flows volumes can be high along the ditch during intense storm events, a series of check dams should be installed along the ditch to slow down the flow, prevent overflow, and maximize the capture of stormwater in the ditch. Gravel or rock bags can be used as check dams.

5.3 DITCH RELOCATION

As the disposal site area expands up the hill, there will be a need to continually adjust the location of the ditch to ensure it is optimally placed. A procedure will need to be developed to either move the ditch up the hill, or construct new ditches up the hill, and bury all or portions of the existing ditch.

5.4 FIBER ROLLS

As the watershed area above the ditch is steeply graded and sheet flow into the ditch will enter the ditch with high velocity during heavy storm events, the placement of a fiber roll or similar device directly above the ditch will serve to slow down flows entering the ditch and protect the integrity of the ditch.

5.5 BERMS AROUND LOWER PORTION OF DISPOSAL SITE DSA

Stormwater will also collect within the DSA itself. Berms should be constructed at the downgradient portion of the DSA to prevent stormwater contaminated within the construction area from leaving the DSA and commingling with uncontaminated stormwater directly downgradient from the DSA. Figure 2 presents the design for this berm, which must continually be reconstructed as the disposal area expands. The berm will consist of 2 meter high berm constructed of disposal site material with side slopes on each side of approximately 1:1.5 (V:H).

5.6 TEMPORARY STORAGE OF DITCH WATER

Conveyance of south side run-on will be from the main ditch to a temporary equalization basin, located in an area with sufficient room (refer to Figure 1). Conveyance of north side run-on will be by sheet flow and a culvert under an access road, to a permanent detention basin between the disposal site and the Frog Pond. A discharge structure should be constructed at both basins, from which effluent will be hard-piped to the stand pipe in the Frog Pond. Both basins should be constructed with adequate design features to prevent basin washout. Figure 3 presents a conceptual design of the equalization basins. The basins should be designed to provide for continuous draining such that there is no ponding after 72 hours. A perforated down drain covered with fabric or an underdrain system that continuously de-waters the basins are examples of ways to achieve constant de-watering. This design will maintain storage volume and help prevent issues with mosquitoes.

Section 6 Transport of Material to Disposal Area

The DCP Specification defines the basic procedures to transport material to the disposal site. The Earthwork and Temporary Access Specifications also provide detail. The Contractor is to determine the route, corridor and methods used to move material from the tunnel onto the embankment footprint. A temporary haul road within the project limits is to be constructed to transport excavated materials without using Route 1. In addition, the DCP shall describe how excavated material will be stockpiled and spread within the footprint of the embankment construction. Temporary access is to be maintained to minimize tracking of soil and sediment onto the roadway. Temporary access is to be repaired or replaced on the same day when the damage occurs. An emphasis shall be made in describing activities that occur during the wet weather period when disposal of material occurs and alternate plans in the event the grade is too wet to allow conventional disposal.

Given that the winter wet weather conditions will affect mobilization and placement of the excavated material, an alternative plan for mobilization and handling of material is to be provided in the DCP that accounts for field changes due to wet grade. Movement of material onto the disposal site will be a significant challenge at this site during wet weather, due to limited access areas, steep grades, history of severe weather conditions, and the high volumetric rate at which materials must be moved to the site. The Plans and Special Provisions for this project assume that vehicles will transport the materials to the disposal site, however, alternate means of movement of materials to the site should be considered. These means could include conveyor belts or other earthmover systems employed by the construction materials industry to transport material from the tunnel area to the disposal site. A conveyer belt system could be constructed from the north, over the hill, from the tunnel area to the disposal site, or from the south, up the side of the disposal site embankment to the disposal site working area. Any proposed conveyer belt system design must be flexible enough to account for the changing working area location of where the materials are disposed at the disposal area. If vehicles are used to transport materials, the type of access road construction up to the disposal site should be considered. Due to the significant grade up to the disposal area, the use of stabilized roads should be considered. Cement or lime mixed into the dirt road material is commonly used to provide additional stabilization to the roads to allow heavily loaded vehicles to drive up steep grades. Lime is not likely to be effective in the area of the disposal site; however, as there does not appear to be significant amounts of clay in the local soils.

Section 7 Management of the Disposal Site

The Order of Work, Earthwork, Cooperation, Topsoil, Finishing Roadway, Clearing and Grubbing, Roadside Clearing, Temporary Access and Water Pollution Control Specifications all contain information related to properly placing and managing material generated from the project at the fill disposal site. The material shall be spread and compacted to the grades as shown on the plans and Figure 2 of this Handout.

Backfill materials placed against sloping ground at cut-and-cover portals shall be benched into the existing sloping ground on lifts of at least 2 meters high, measured horizontally from the face of the existing sloping ground. Materials generated from the project to be used in embankment construction at the designated disposal site shall be in conformance with the following requirements:

- ?? Materials shall be disintegrated to soil and gravel-size particles and thoroughly mixed prior to placing as compacted embankment.
- ?? Rock or rock fragments less than or equal to 200 mm, may be utilized in the embankment construction provided they are well distributed throughout the embankment and not placed in concentrated pockets.
- ?? Rocks greater than 200 mm, may also be utilized in the embankment construction, provided that they are placed within the core of the embankment at least 39 meters from the outer edge. Within this core, material can be placed without compaction. This uncompacted core cannot exceed 1.6 meters above surrounding engineered embankment during construction. If there is inadequate room to place within the core areas, then rocks greater than 200 mm shall be either stockpiled at another location until conditions allow for disposal or reduced to 200 mm or less in size by crushing or other means possible by the Contractor.

The outer portions of the embankment at the disposal site shall be constructed, as shown on the plans and Figure 2, at the beginning of each incremental lift. The outer 6 to 8 meters of the embankment shall be constructed and stabilized prior to placement of any other embankment material behind this berm. Embankment slope construction at the dedicated disposal site shall be staged in accordance with the detail for Disposal Site Slope Face stabilization shown on the plans and Figure 2. Note from Figure 2 (Notes 7 and 8) that the larger particle size material (>200 mm diameter) is to be placed at greater depths onsite, while the smaller particle size material (<200 mm diameter) is to be placed closer to the surface. The slope face of embankment slopes shall be stabilized with erosion control netting as the embankment is constructed in lifts.

7.1 EFFLUENT TREATMENT SYSTEM

The DCP Specification, “Work and Access Area Treatment Systems” Section describes procedures to construct an effluent treatment system to treat all surface runoff discharges from embankment construction work areas, corridors, routes and other locations used for mobilizing material from the tunnel location to the disposal site in accordance with water quality limitations and these special provisions. The Contractor shall design and implement an appropriate effluent treatment system for the site conditions and anticipated flow rate to achieve and maintain

compliance with the specified limitations. Treatment systems shall be appropriately sized to remove turbidity and suspended solids and prevent the delay of work.

Treatment system components are to include, but not be limited to, weir tanks, settling tanks, gravity bag filters, sand media filters, pressurized bag filters, cartridge filters, ~~fine~~ flocculants or a combination of these systems to provide adequate treatment and polishing. Storage tanks alone may not provide sufficient sediment removal properties to meet the water quality limitations for turbidity and the Contractor shall consider all treatment options necessary to comply with the water quality limitations.

Sediment removed during maintenance of the treatment system shall be removed in accordance with the manufacturer's recommendations and appropriately handled. Sediment removed during maintenance of the treatment system that are from areas known to or suspected to contain contaminants shall be characterized by laboratory analysis before disposal. Disposal of uncontaminated sediments shall conform to the provisions in "Earthwork," of these special provisions.

Finding a location with an adequate area to construct the treatment system will be a challenge, due to steep grades on much of the site. The OMC facility location is level ground which may provide adequate level space. Following treatment, the effluent will be hard piped to the standpipe in the Frog Pond, for discharge to the off-site outfall. Refer to Figure 1 for a conceptual drawing of these elements.

Section 8 Visual Monitoring

The Contractor shall conduct a daily inspection of the disposal site and access corridors during the period from September 1 to April 15 each year when discharges occur. Visual monitoring and inspection shall identify the need for periodic maintenance, ensure that all components operating efficiently, and document conditions within the discharge points and receiving waters. Any component found to negatively affect the efficiency of the BMPs shall be immediately maintained, repaired or replaced.

The Contractor shall photograph each discharge point prior to initiating the first time discharge. During actual discharge events visual inspections shall include observations of the color and clarity of the effluent discharge and the receiving waters, the presence or absence of suspended material, presence or absence of water fowl or aquatic wildlife, wind direction and velocity, atmospheric condition, time, and date.

When visual observations indicate that the effluent discharge is more turbid than ambient background levels, the Contractor shall immediately cease the discharge, notify the Engineer and take corrective actions to repair, modify, maintain or replace the BMP or materials. Further information on visual monitoring requirements is contained within the DCP.

Section 9 Sampling and Analysis Plan

The Contractor shall prepare a Disposal Site Sampling and Analysis Plan (DSSAP), as part of the DCP, describes the sampling and analysis strategy and schedule for monitoring pH and turbidity in conformance with this section. The DSSAP should also include sampling of potential non visible pollutants from construction activities. The DSSAP shall identify sampling locations for collecting water quality samples and the rationale for their selection. A sampling location shall be designated for the following 5 locations:

1. Upstream of direct discharges from the disposal site to take natural background measurements
2. Immediately downstream from the last point of direct discharge from the disposal site
3. Immediately down gradient of run-on point(s) to the right of way,
4. Influent to Work Access Area Treatment System
5. Effluent from Work Access Area Treatment System.

Sampling locations should consider access restrictions in the ESA areas. The DSSAP shall state the sampling preparation and collection procedures, quality assurance/quality control, calibration logs for equipment used to take field measurements, sample labeling procedures, sample collection documentation, sample shipping and chain of custody procedures, sample numbering system, and reference the construction site health and safety plan.

9.1 WATER QUALITY SAMPLING AND TESTING

Water quality sampling shall be conducted at all identified locations before, during, and after every storm event that produces measurable runoff, and when the event is greater than 0.25 inches of rain. PH and Turbidity analyses shall be conducted onsite with an appropriately calibrated pH and turbidity meters. Copies of the field recorded data shall be transmitted electronically to the Engineer at the end of each working day with the exception that the Engineer shall be immediately notified of all exceedances of the water quality limitations.

Additional effluent, background, and receiving water measurements shall occur whenever there is a noticeable visual effect on the color or clarity to receiving waters. The Contractor shall conduct water quality sampling as provided below:

1. The initial ambient upstream and ambient downstream measurements shall be taken a maximum of one hour prior to initiating the discharge from the treatment system.
2. Influent, effluent, upstream, and downstream measurements shall begin between 10 to 30 minutes after the discharge has entered the receiving waters.
3. For discharges of less than 4 hours in duration, influent, effluent, upstream and downstream measurements shall occur every hour.
4. For discharges lasting 4 hours or greater in duration sampling shall conform to the following:

- a) Same as Items 1 and 2 above.
- b) During the first day's operation sampling of the influent, effluent, upstream and downstream locations shall occur every hour for the first 4 hours. After which, sampling shall occur on a 2-hour frequency for the remainder of the first day's discharge.
- c) During the second and third day of operation sampling shall occur at a two-hour frequency.
- d) After the third day of operation, sampling shall occur every four hours thereafter during each day of operation.

The Contractor shall not collect samples during any storm event that results in dangerous weather conditions during the first two hours of any discharge. Dangerous weather conditions include, but are not limited to darkness, winds, flooding, and electrical storms. The Contractor shall document visual observations of the existing dangerous conditions, and notify the Engineer immediately. The Contractor shall determine the weather conditions are safe, and notify the Engineer prior to resuming sampling.

9.2 FIELD ANALYSIS RESULTS AND EVALUATION

Field measurements of pH and turbidity that indicate an exceedance over the Water Quality Limitations described in this Handout shall be reported to the Engineer immediately. If at any time the sampling indicates an exceedance of the water quality limitations, the Contractor shall confirm the exceedance by taking an additional measurement no more than 15 minutes after the initial measurement. If the second sample confirms the exceedance the discharge activity shall immediately cease, and corrective actions shall be taken to repair, modify, maintain or replace the BMPs or materials.

The Contractor shall prepare and submit a Notice of Discharge within 48 hours to the Engineer. The discharge activities shall not resume until inspection and approval by the Engineer.

Analytical results shall be accompanied by an evaluation from the Contractor to determine if down gradient samples show elevated levels of the tested parameter relative to levels in the control sample. If down gradient or downstream samples, as applicable, show increased levels, the Contractor will assess the BMPs, site conditions, and surrounding influences to determine the probable cause for the increase. As determined by the assessment, the Contractor will repair or modify BMPs to address increased levels and amend the SWPPP as necessary.

9.3 DOCUMENTATION AND REPORTING

The Contractor shall document all visual observations and data collected onsite from pH and turbidity measurements and the calibration logs in a Daily Monitoring Report. The Daily Monitoring Report shall include all the information required in the Monthly Monitoring Report (MMR), which the Contractor shall submit by the 5th of each month to the Engineer. The MMR shall include:

The date, locations and time of visual observations, sampling, and/or measurements, and name of person conducting the monitoring;

- ?? Storm event information when storm started and ended and amount of rainfall per day;
- ?? Analytical results, method detection limits, and analytical techniques or methods used;
- ?? Quality assurance/quality control records and results (from laboratory);
- ?? Calibration logs for equipment used to take field measurements; and
- ?? Records of any corrective actions and follow-up activities that resulted from the visual observations and/or sampling results.

Section 10 Contractor Certification and Training Requirements

The following requirements apply to Contractor Certification and Training.

Contractor. The Contractor shall submit to the Caltrans Engineer a statement of qualifications, describing the training, previous work history and expertise of the individual selected by the Contractor to serve as Water Pollution Control Manager.

Water Pollution Control Manager - Shall be a Certified Professional in Erosion and Sediment Control (CPESC).

Water Pollution Control Crew. The Water Pollution Control Manager shall have a minimum of six workers, in addition to the Water Pollution Control Manager, identified in the SWPPP as the crew responsible for implementation and maintenance of water pollution control work. In addition, this group shall be responsible for implementing work when notified by the Engineer within a 24-hour period and to sustain necessary work continuously to completion as determined by the Engineer.

Sampling Personnel. Only trained personnel shall collect water quality samples. Qualifications of designated sampling personnel shall describe training and experience, and shall be included in the DSSAP, which is part of the SWPPP.

Section 11 Storm Water Pollution Prevention Plan

As part of the water pollution control work, an SWPPP is required for this contract. The SWPPP shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications, the requirements in the Manuals, the requirements of the Permits, and the contract special provisions.

The SWPPP shall apply to the areas within and those outside of the highway right of way that are directly related to construction operations including, but not limited to, asphalt batch plants, material borrow areas, concrete plants, staging areas, storage yards, and access roads

For this project, the following temporary BMPs, specified in the SWPPP Preparation section of the Water Pollution Control specification, are required to be addressed in the SWPPP:

- ?? Stabilized Construction Roadway
- ?? Non-Storm Water Discharge Control
- ?? Temporary Hydraulic Mulch (Bonded Fiber Matrix)
- ?? Temporary Concrete Washout Facility
- ?? Temporary Construction Entrance
- ?? Temporary Cover
- ?? Temporary Check Dam
- ?? Temporary Silt Fence
- ?? Disposal Control Plan
- ?? Temporary Drainage Inlet Protection

For this project, the following permanent BMPs, specified in the SWPPP Preparation section of the Water Pollution Control specification, are required to be addressed in the SWPPP:

- ?? Erosion Control (Type D)
- ?? Erosion control netting
- ?? Fiber Rolls

These permanent BMPs can also serve as temporary BMPs during the construction period.

The SWPPP shall incorporate water pollution control practices in the following categories:

- ?? Soil stabilization
- ?? Sediment control
- ?? Wind erosion control
- ?? Tracking control
- ?? Non-storm water management
- ?? Waste management and materials pollution control

The SWPPP is also to include the Sampling and Analysis Plan as required by the Permits, and a Water Pollution Control Schedule that describes the timing of grading or other work activities that could affect water pollution. The Cost Break-down section in the Water Pollution Control

Specification presents a Water Pollution Control Cost Break-down table which provides a complete list of all construction site BMPs for the project.

The critical sections of the SWPPP are Sections 500 and 600. The following table provides guidance as to what references in the Plans and Special Provisions, in addition to this Information Handout, should be referenced to complete the respective section of the SWPPP.

SECTION ELEVEN

Storm Water Pollution Prevention Plan

SWPPP Section	Specification Reference	Plans Reference
500.1 Objectives	Water Pollution Control Spec	
500.2 Vicinity Map	Drawings	Title and Location Map
500.3 Pollutant Source Identification and BMP Selection	All Specs	
500.3.1 Inventory of Materials and Activities that May Pollute Storm Water	All Specs	
500.3.2 Nature of Fill Material and Existing Data Describing the Soil	Earthwork Spec, Clearing and Grubbing Spec, Temporary Access Spec	Contour Grading Plans
500.3.4 Soil Stabilization (Erosion Control)	DCP Spec, Temporary Access Spec, NSDCP	Erosion Control Plan, Details, and Quantities
500.3.5 Sediment Control	Earthwork Spec, Temporary Access Spec	Erosion Control Plan, Details, and Quantities
500.3.6 Tracking Control	Earthwork Spec, Temporary Access Spec	
500.3.7 Wind Erosion Control		
500.3.8 Non-Storm Water Control	DCP Spec, Water Pollution Control Spec	
500.3.9 Waste Management and Materials Pollution Control	Earthwork Spec, DCP Spec, Clearing and Grubbing Spec	Construction Details, Erosion Control Plans and Details
500.3.10 Cost Breakdown for Water Pollution Control	Water Pollution Control Spec	Water Pollution Control Details
500.4 Water Pollution Control Drawings (WPCDs)	Earthwork Spec, Drawings	Construction Details, Erosion Control Plans and Details
500.5 Construction BMP Maintenance, Inspection and Repair	DCP Spec, Water Pollution Control Spec, Temporary Access Spec, NSDCP	Water Pollution Control Details
500.6 Post-Construction Storm Water Management	DCP Spec, Water Pollution Control Spec	Drainage Plans, Grading Plans
500.7 Training	DCP Spec, Water Pollution Control Spec, NSDCP	N/A
500.8 List of Subcontractors	N/A	N/A

SECTION ELEVEN

Storm Water Pollution Prevention Plan

SWPPP Section	Specification Reference	Plans Reference
500.9 Other Plan/Permits	DCP Spec, Water Pollution Control Spec, Relations with RWQCB Spec	
600.1 Site Inspections	DCP Spec, Water Pollution Control Spec	N/A
600.2 Discharge Reports	DCP Spec, Water Pollution Control Spec	N/A
600.3 Record Keeping and Reports	DCP Spec, Water Pollution Control Spec	N/A
600.4 Sampling and Analysis Plan for Sediment	DCP Spec, Water Pollution Control Spec	N/A
600.5 Sampling and Analysis Plan for Non-Visible Pollutants	DCP Spec, Water Pollution Control Spec	N/A

Notes:

Spec = Specification

N/A = Not Applicable

DCP = Disposal Control Plan

NSDCP = Non-Storm Water Discharge Control Plan